GERB Edition 1 data release

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GERB processing history

- Aug. 2002: Launch GERB-2 on Meteosat-8
- Dec. 2002: first GERB-2 images
- Dec. 2003: first GERB/SEVIRI products with NRT geolocation (V2)

Validation and gradual improvements (geolocation, calibration, ...)

- Dec. 2005: launch GERB-1 on Meteosat-9
- 31/1/2006: first GERB-1 images
- 25 March 2006: freezing GERB-2 processing algorithms (V3)

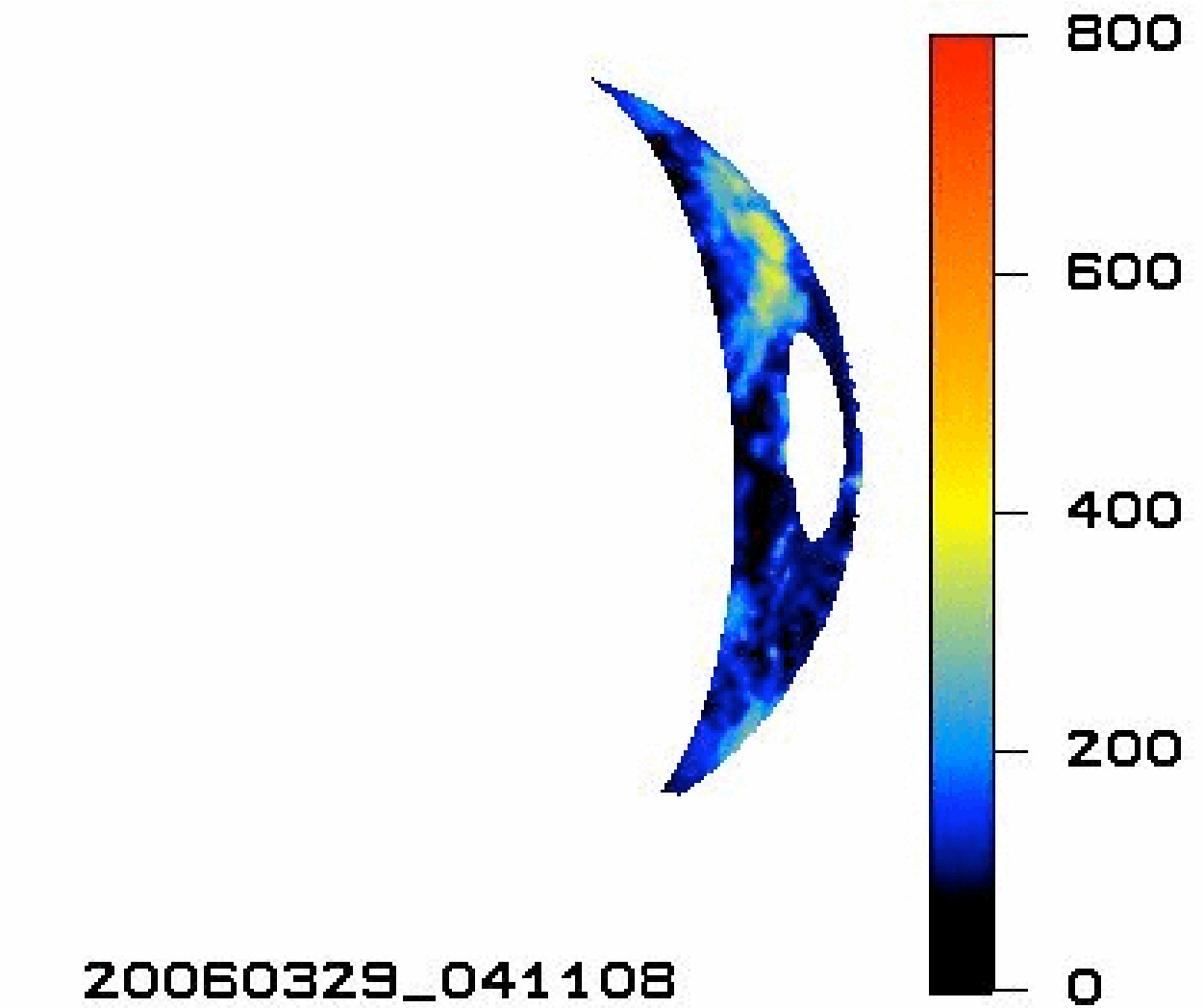
GERB-2 data release

- V3 data processed in NRT since 25 March 2006
- 2 weeks V3 reprocessed for quick comparison with CERES
  - 21-28/6/2004
  - 11-18/12/2004
- V3 becomes Edition 1 after visual quality control
  - Planned first renaming: 9 May 2006
- complete reprocessing V3 planned at rate 2 days/day

L2 GERB product types

- Main parameters: reflected solar flux and radiance, emitted thermal flux and radiance
- 3 types of sampling:
  - ARG: GERB footprint resolution (50 km at nadir), average of 3 scans
  - SHI/ARCH: resolution enhanced by SEVIRI (9 km at nadir), 15’ snapshot
  - BARG: GERB resolution, PSF removed, exact 15’ sampling

ARG Reflected solar flux (W/m2)

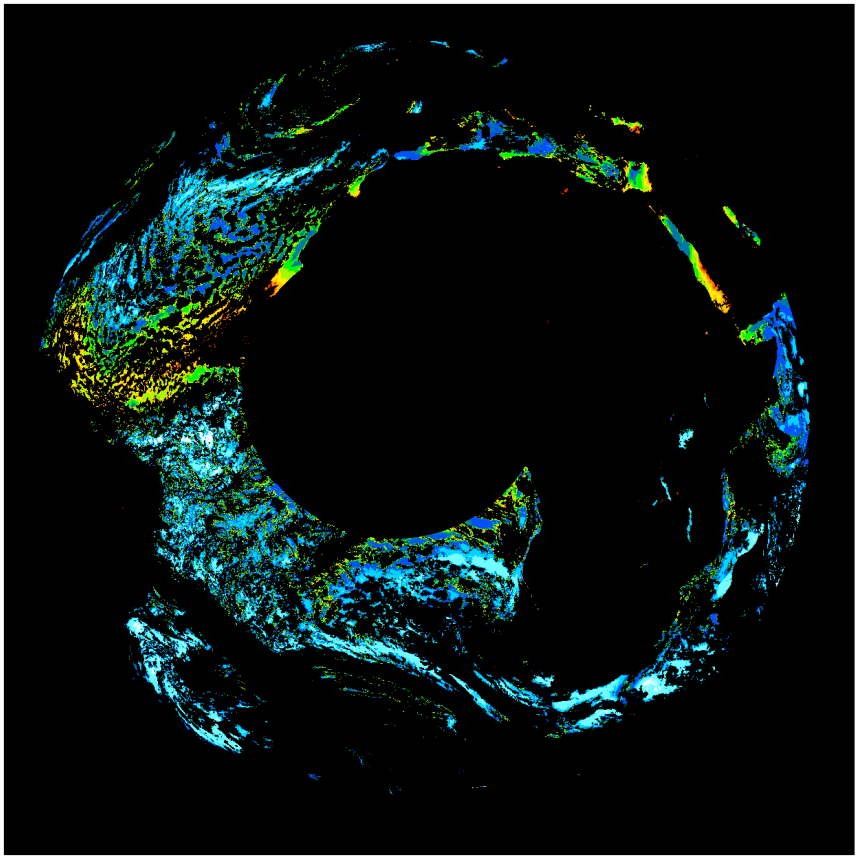


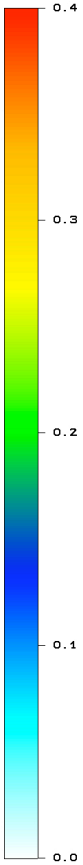
Auxiliary data

- Day time clouds (ADM selection)
  - Cloud cover, optical depth, phase
- Aerosol optical depth over ocean
  - 0.6, 0.8 and 1.6 micron

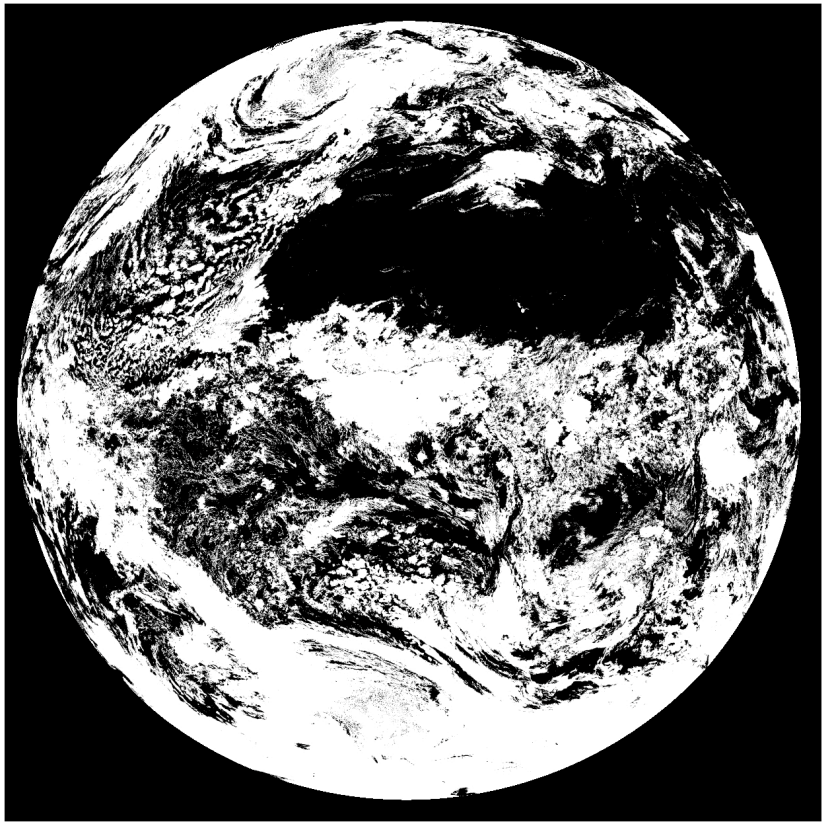
Example 3x3 SEVIRI pixel res.

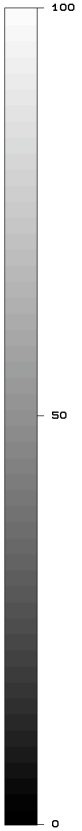
AOD 0.8 micron



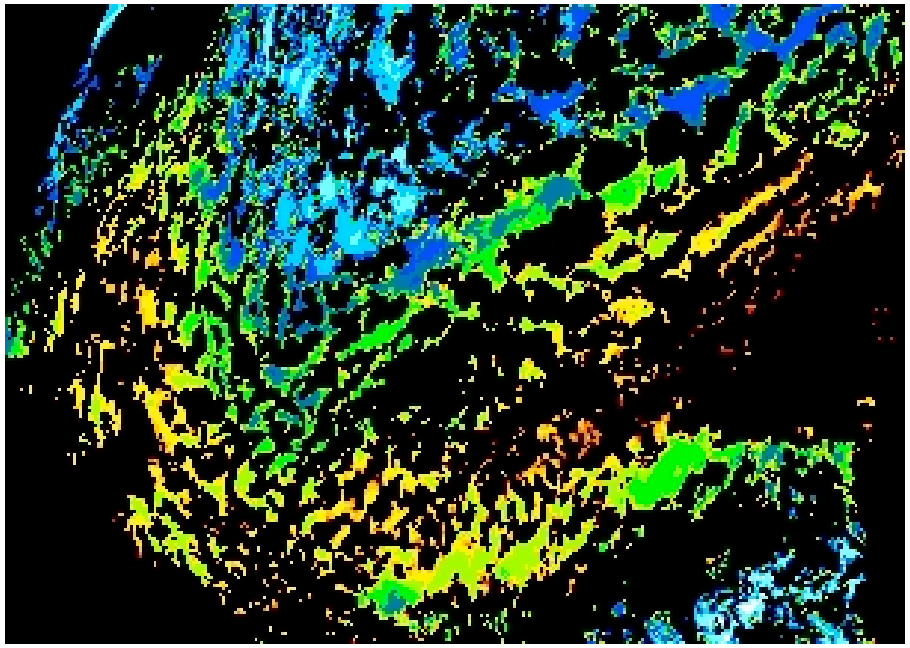


Cloud cover





Zoom AOD



- ‘street’ of dust from Sahara: OK
- False high values around clouds

GERB/CERES comparison

- Unfiltered radiance comparison: validation calibration + unfiltering
  - Reflected solar radiance
  - Emitted thermal radiance: night + day
- Additional flux comparison: validation scene id + ADM
- Additional regional analysis: scene dependence differences

Used data

- GERB, V999 compared with CERES ES8 for 6-7/2004
- GERB, V3 compared with CERES SSF for 2 weeks in 6/2004 and 12/2004
- Differences GERB V999 V3:
  - SW unfiltering method
  - Empirical LW ADM correction disabled in V3

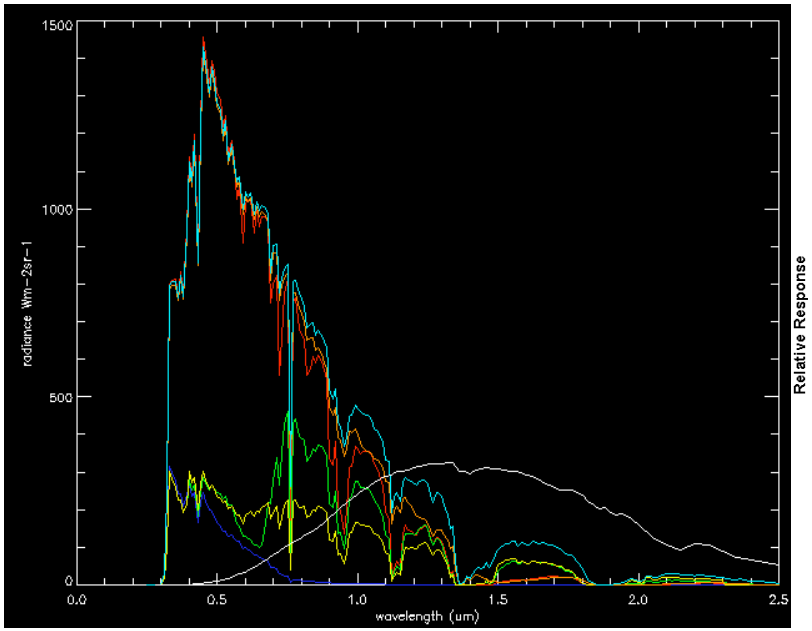
GERB SW RAD / CERES SW RAD

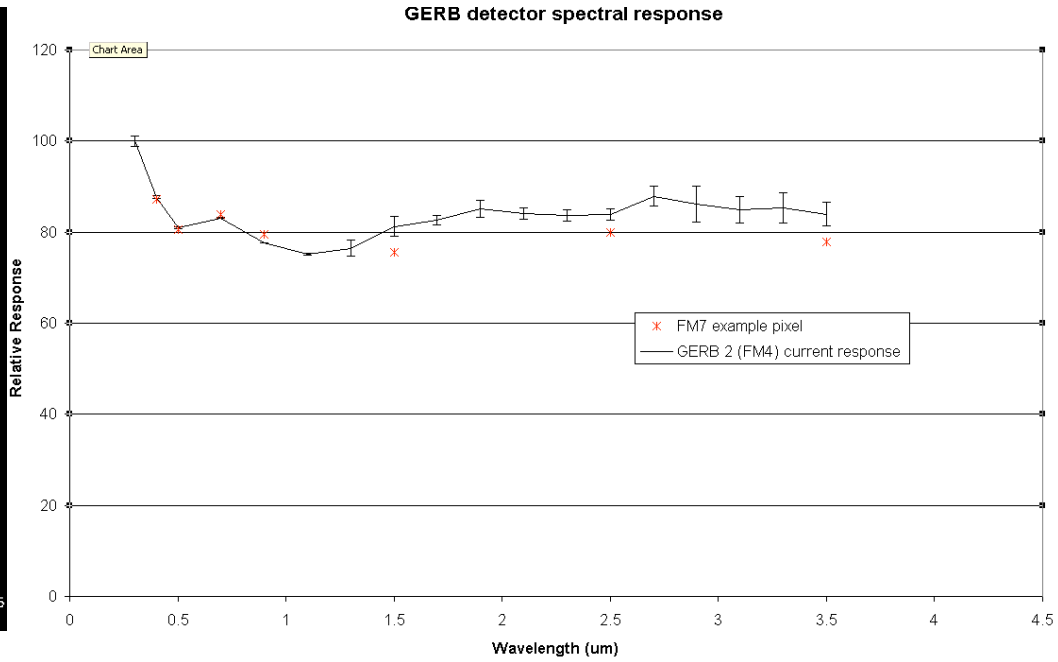
		FM2	FM3
ES8, V999	All-sky	1.045	1.066
	Cs ocean	1.041	1.079
SSF, V3	All-sky	1.034	1.040
	Cs ocean	1.040	1.072

GERB SW FLUX / CERES SW FLUX

		FM2	FM3
ES8, V999	All-sky	1.046	1.054
	Cs ocean	1.081	1.050
SSF, V3	All-sky	1.070	1.084
	Clear-sky	1.089	1.091

Influence spectral response on SW calibration





- Preliminary: SW radiance 3.5 % lower

GERB LW FLUX / CERES LW FLUX

		FM2	FM3
ES8, V999	Day	0.977	0.972
	Night	0.975	0.970
SSF, V3	Day	0.988	0.982
	Night	0.984	0.979

Conclusions

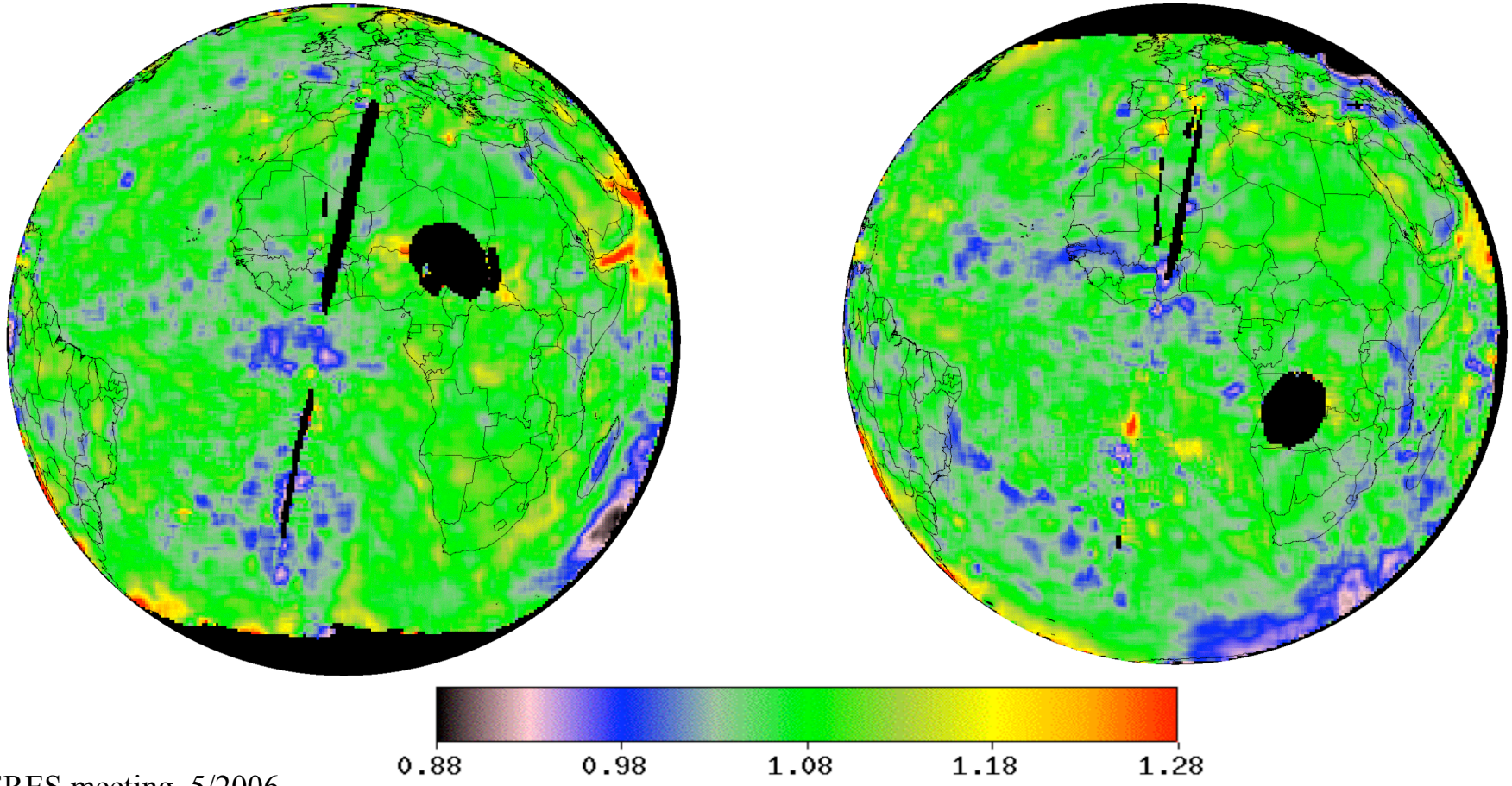
- Edition 1 will be first stable version released for scientific studies.
- Next priority: reprocessing GERB-2 and consistency check GERB-2/GERB-1.
- SW spectral response and calibration will be studied further.


FY-3 CERBE Optics Unit

GERB SW / CERES SW

FM2 - June

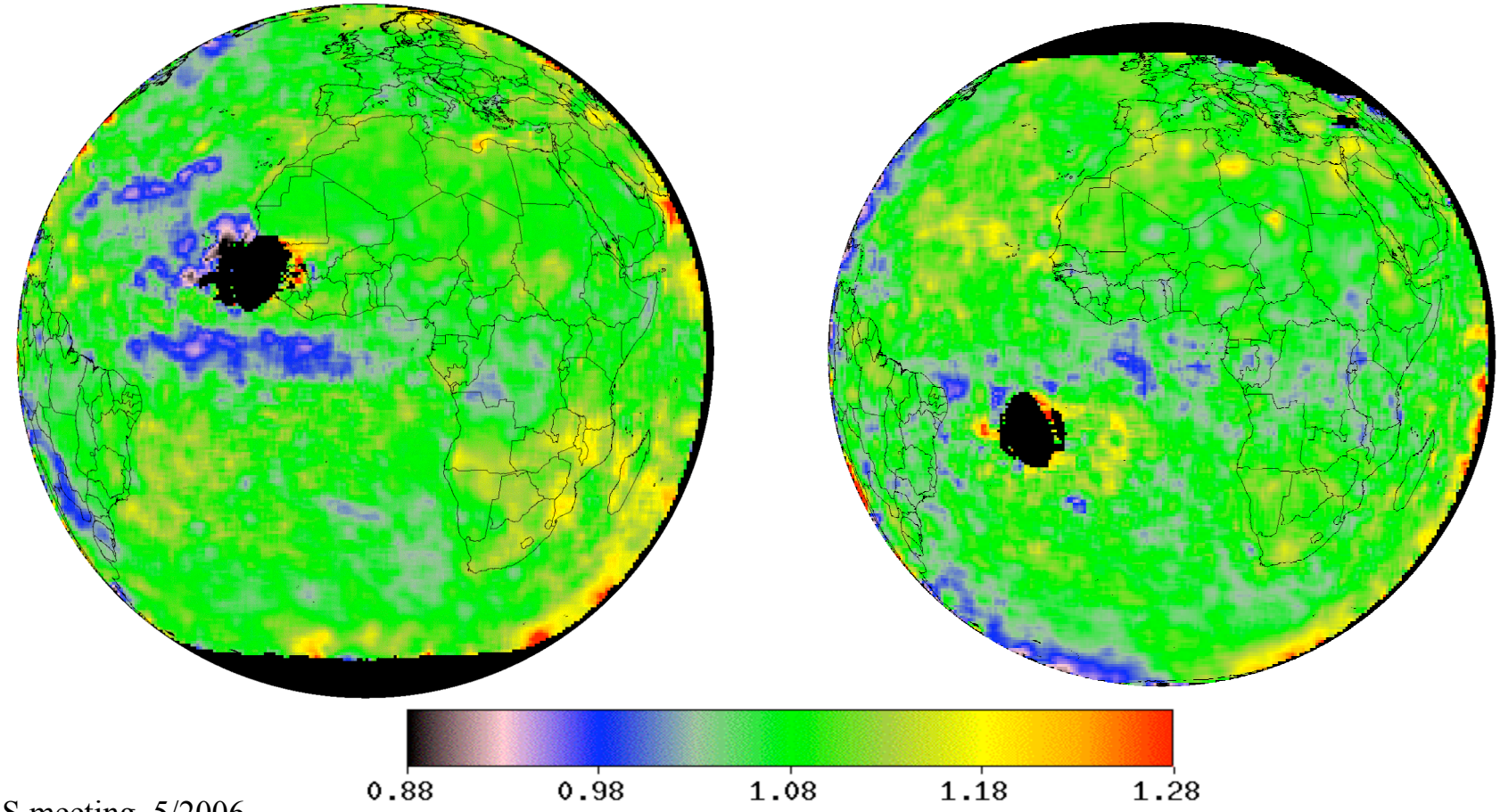
FM2 - December



GERB SW / CERES SW

FM3 - June

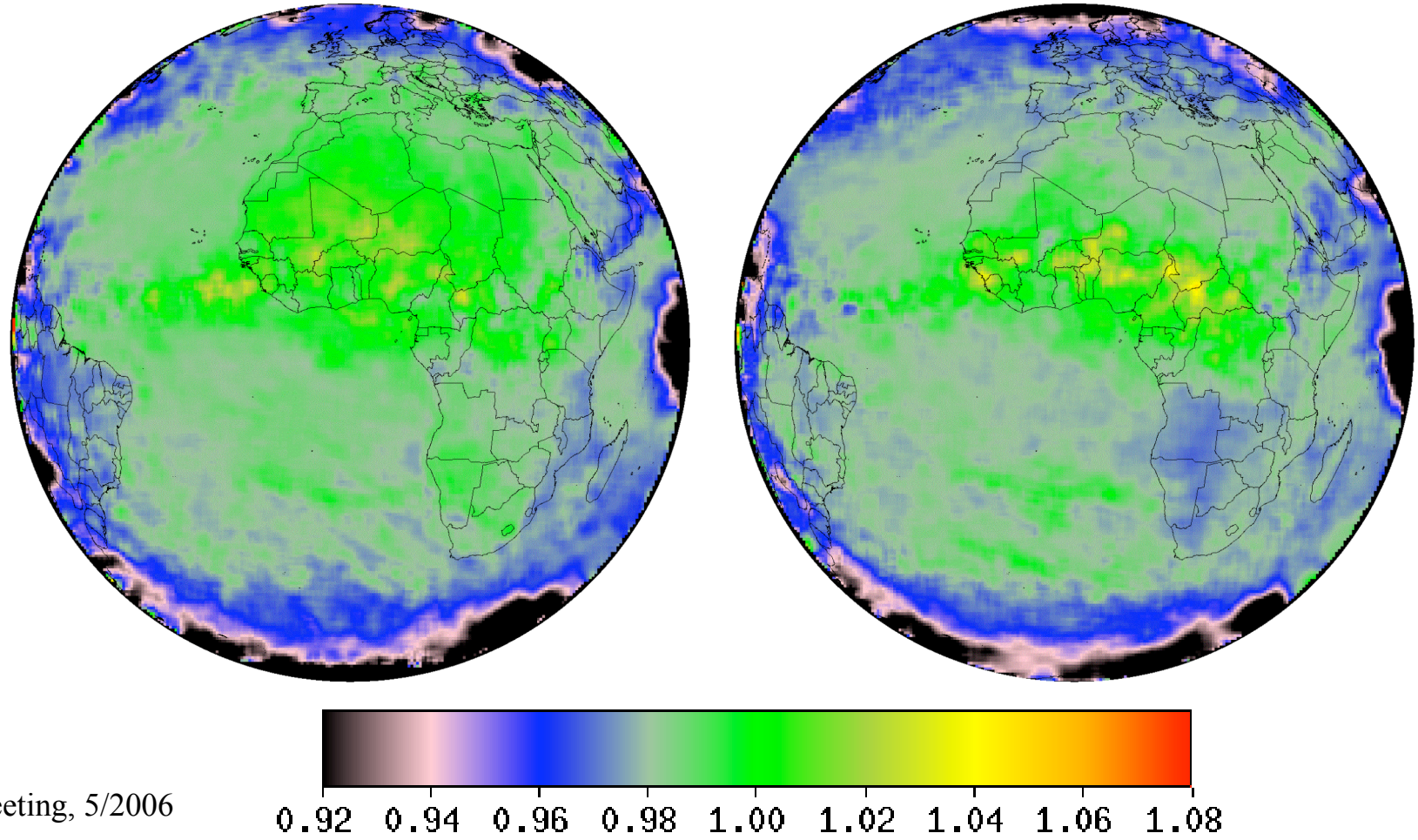
FM3 - December



GERB LW / CERES LW

FM3 – June – Day

FM3 – June – Night



Future developments - LW

- LW anisotropy correction for cold clouds will be provided as correction to be applied by user for Edition 1.
- Future: improve parametrisations.

Future developments - SW

- Reduce uncertainty SW calibration by improving knowledge SW spectral response.
  - Scene type dependent comparisons filtered radiance GERB-2, GERB-1, CERES
  - Improved spectral response measurements spare GERB detector (on-going)
  - In-flight comparisons spectrometer (MODIS,Sciamachy) ?

ARG Emitted thermal flux (W/m2)